Helping Mobile Operators & Terminal Vendors
Dynamically Update Terminal Capabilities

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Agenda

• Market drivers for Dynamic Capabilities
• Use cases
• Elements in the infrastructure
• Factors for mobile market adoption
• Conclusions
Rapid proliferation of new services

- **SEVENTEEN** new J2ME Java standards in past year (JSRs)
- Variety of rich media CODECS
  - Still imaging
  - Audio
  - Video
- Variety of messaging standards
  - SMS
  - MMS
  - IM
- Variety of DRM methods
- Content developers way ahead of devices
Service concerns today

- **Consumers**
  - Want to use services they see working on other phones

- **Retailers**
  - Pre-installed features/content are stale by the time they reach the store

- **Developers**
  - Inconsistent APIs across a networks devices increases development costs

- **Operators**
  - Want to focus on the right services for their market, not tied to phone capabilities
Device time-to-market more critical

- Devices now holding up critical mobile services revenue
- Proliferation of providers
  - ODMs, OEMs
  - 27 in China alone
- Proliferation of channels
  - Via Operators, MVNOs
- Device development lifecycle growing from 9 to 18 months

Market inefficiencies extending TTM - time to money
Efficiency issues in development

1st level phone features
- radio stack
- address book, etc.

2nd level phone features:
- SMS, J2ME

3rd level phone features:
- MMS, games,
- PIM, CODECS,
- LBS

3rd level features get chopped in order to make the schedule!

development time
De-couple service & device lifecycle
De-couple service & device lifecycle
Dynamic Capabilities as a subset of Mobile Device Management

- Configure/activate mobile services at POS
- Over The Air Repair
- Dynamic Capabilities
- Enterprise management
Configuration at Point of Sale

- Phone purchased at retailer
- Activation triggers Mobile Device Management system
- MDM system reads phone status
- MDM uses OMA-DM to set variety of configuration parameters
- Based on unique identifier or other criteria, JVM environment is augmented OTA using OSGi framework
- Custom J2ME content is provisioned to phone
- MDM triggers communication to the new subscriber for promotion, welcome, etc.
Over The Air Repair

• “Repair” of software can have two elements
  – Properly set (or reset) config parameters
  – Update software load FOTA and/or OSGI framework

• Repair job can be triggered by
  – Customer Care call
  – “Self serve” web site driven by subscriber (or in-store kiosk)
  – Widespread issue solved discovered proactively from handset or operator

• MDM determines behavior based on
  – Current phone config
  – Schedule set by operator
  – Other factors such as population, set of target phone #s, etc.
Dynamic Capabilities

• New content or mobile services desired for target population
  – Only fraction have phone capabilities to support new content
  – Use “on-demand” updating job to sell new services to existing population
• Subscriber access vending machine
• Vending machine coordinates with MDM system to determine current and potential device capabilities
• Vending machine displays range of content based on available J2ME elements that are available for “injection” into the subscriber’s phone
• Phone is updated using OSGI framework based on content purchase
Enterprise Management

• “Cordon off” population of operator handsets with secure console access by IT
• Ideal way to extract more enterprise revenue
• Dynamic inject new capabilities using OSGI framework to support corporate apps
  – Remove game engine?
Infrastructure elements
Who is Insignia?

- Public (NASDAQ:INSG)
- Headquarters in Silicon Valley
- Founded 1986
- Global operations
- Software development company with expertise in both embedded and infrastructure software for the wireless industry
- www.insignia.com